

DISPOSABLE TOOTHBRUSH

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Abstract

The invention relates to a disposable toothbrush. The aim of the invention is to provide a disposable toothbrush which is stable in terms of handling and ensures that the toothpaste is ejected in the desired areas and that, to a large extent, the toothpaste does not dry up if it is stored for a long time. The inventive disposable toothbrush comprises a brush head and a handle, a toothpaste compartment being integrated into the brush head, from which the toothpaste can be displaced via outlets into the region of the bristles by means of pressure, and is characterised in that a pressure element is located in the brush head in such a way that it can be displaced in an insertion opening in the direction of a toothpaste compartment arranged in the brush head, and comprises a front surface which rests directly against the toothpaste compartment, in addition to a profiled surface and other sealing surfaces, the profiled surface being arranged below the outlets of the brush head. The advantage of the invention lies in its embodiment and in the co-operation of the pressure element with the brush head.

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One-way toothbrush description the invention refers to a one-way toothbrush in accordance with the generic terms of the requirements 1 and 5. One-way toothbrushes are well-known in different versions, qualities and characteristics. With many well-known one-way toothbrushes the actual brushes and the tooth paste are separately offered. During the use the tooth paste is laid on on the bristles. Then effected in actually well-known way flashes of the teeth. Frequent is it like that that the quantity of the provided tooth paste exceeds the need by far, which entails a verschwendung of the finery means. Further one-way toothbrushes are well-known, with which both is offered in one. However here the danger of drying up the tooth paste exists, before the toothbrush of their actual use could be supplied. In the DE 363 86 96 aluminium a Wegwerf toothbrush is described, which consists in its main parts of a brush head with the bristles as well as a grasp, whose end is adjustably arranged piston-like trained and in the brush head. The brush head exhibits a cavity, in tooth paste is contained.

The tooth paste is pressed by shifting the piston-like trained grasp by outlets within the bristle range into the bristles, so that the finery means for the tooth cleaning is available. The outlets within the range of the bristles are covered with a thin foil, which tear up by the piston effect of the grasp and which do not obstruct tooth paste transport into the bristles, however before use draining the tooth paste to prevent are. These one-way toothbrushes described there exhibit different disadvantages. Like that the stability of the grasp is very small in the brush head, since hardly guidance surface for the grasp is present in the cavity. This can lead to the fact that to an increase of pressure in the tooth paste container lead an inadvertent moving of the grasp or the brush head against each other, which tearing the dry film resist effectuation and thus the tooth paste can dry up. The invention is the basis the task to offer a one-way toothbrush which is stably manageable and ensured that the withdrawal of the tooth paste takes place in the desired ranges and is avoided as far as possible drying up with longer storage. The solution of the task takes place with the characteristics of the requirements 1 and 5.

Favourable training further are indicated in the unteranspruechen. The one-way toothbrush according to invention with brush head and grasp, whereby in the brush head a tooth paste reservoir is integrated by the fact, of which with pressure pressure the tooth paste by outlets into the range of the bristles is transportable, is characterized that in the brush head toward a tooth paste container there present in a pushing in opening adjustably arranged print-hurry finds that a front surface resting directly against the tooth paste container, a profile surface and far RH exhibit sealing surfaces, whereby the profile surface is arranged underneath the outlets of the brush head. The advantages of the invention are in the

training and in cooperating the pressure part with the brush head. Due to the presence of the profile surface on print-hurry is possible it to open during pressure practice on the tooth paste in the tooth paste container by shift of the pressure part due to positive training of the surface profile the outlet, which was hermetically locked by the profile before, and to reach a transport of the paste by means of the profile surface into the withdrawal opening of the brush head. The presence of this profile surface makes it possible, print-hurries relatively deeply in the tooth paste container of the brush head to arrange. Hermetic locking of the tooth paste container is reached by the appropriate positive training of the profile surface and the sealing surfaces of the pressure part after all sides.

In a further training of the invention is print-hurry with the grasp directly connected, which makes a shifting possible of the pressure part by means of the grasp. In a further arrangement of the invention is print-hurry independently of the reaching into the brush head. Thus a better stability between grasp and brush head results. In a further arrangement of the invention the profile surface of the pressure part exhibits a depressing groove, which is limited by a lateral groove delimitation and a rear check barrier. In the depressing groove one or more plugs are in such a way arranged that this terseite the outlets in the brush head of the Zahnpastabehael hermetically locks. According to invention planned the plugs, which can be trained for example conically or halfspherically, own itself brush head manufactured in cooperating with the out flexible material outstanding to prevent both an air inlet and a tooth paste withdrawal.

By the special training of the profile surface it is also possible to achieve with the production of the toothbrushes by engaging the plugs into the withdrawal openings a defined position of the pressure part in the tooth paste container. In further training of the invention is print-hurries in form of a right parallelepiped trained, whereby from the pushing in opening of the brush head a connecting piece of the pressure part stands out for the purpose of the manipulation of the pressure part. In order to achieve a safe shifting of the pressure part with the plug by the pushing in sliding into the tooth paste container, it is of advantage to manufacture either the entire brush head or parts of the brush head from flexible materials. Possible it also that or the plugs is to be made of flexible material, so that after its deformation engaging into the outlet becomes possible. Both the outlets and the plugs can be very differently formed. Importantly here it is that by the training of the outlet and/or the plug positive locking of the outlet is reached. Suitably are for example cross sections with round, oval or also schlitzfoermiger training.

The choice of the cross-sectional shape can depend among other things also on the consistency of the assigned tooth paste. The more highly liquidly the finery means is, the klei more ner can also the outlet and/or the plug be. The training of the brush head from flexible material makes it also possible, favourable-proves a particularly good seal between the sealing surfaces of the pressure part and the inner surfaces of the tooth paste container to reach, without the relocatability of the pressure part is unfavorably affected by it. The situation and the number of outlets and the number of the plugs which is connected with it are determined essentially also by the consistency of the tooth paste and/or also by the size of the brush head and/or the bristle field. The profile surface of the pressure part makes practically the arrangement possible of outlets in each place of the brush head. The invention is more near described in the following one on the basis by remark examples and designs.

Fig. 1 a representation of the one-way toothbrush show also at the grasp set print-hurry in dismantled condition, Fig. 2 a schematic representation of the one-way toothbrush with filled tooth paste container and locked outlet, Fig. 3 a schematic representation of the one-way toothbrush in the ready for use condition with squeezed out tooth paste, Fig. 4a a brush head with an outlet in plan view, Fig. 4b a grasp at set print-hurry and a plug in plan view, Fig. 4c a brush head in schematic Schnittdarstellung with filled in tooth paste, Fig. 4d a grasp at set print-hurry and plug, Fig. 5a a brush head with schlitzfoermiger outlet in plan view, Fig. 5b at a grasp a set print-hurry with oblong plug, Fig. 6a a brush head with two circular withdrawal openings, Fig. 6b at a grasp a set print-hurry with two plugs, Fig. 7a a brush head with shifts arranged outlet, Fig. 7b print-hurry with likewise accordingly shifts arranged plug, Fig. 8a a brush head connected firmly with a grasp, Fig. 8b a separate print-hurry in plan view, in the profile and in the cross section, Fig. 8c a one-way toothbrush with separate print-hurry in schematic sectional view with locked outlet, Fig. 8d a ready for use one-way toothbrush in schematic sectional view and Fig. 9 a one-way toothbrush with laterally arranged print-hurry.

In an arrangement of the invention in accordance with Fig. 1 the one-way toothbrush consists of a brush head 3 and a grasp 1. The brush head 3 exhibits a tooth paste container 2, an outlet 5 and a pushing in opening 14. Over bristles 4 are arranged the outlet 5 around and over the entire surface of the brush head 3. The grasp 1 points over a shank 9 connected print-hurries 12 up. That print-hurry 12 is in particular by a profile surface 16 characterized. The profile surface 16 exhibits a depressing groove 10, which is limited by a groove delimitation 11 and a check barrier 7. In the front part of the depressing groove 10 a plug 6 is arranged. After filling the tooth paste container 2 in the brush head 3 the grasp 1 with a front surface 15 of the pressure part 12 into the pushing in opening 14 is pushed. The sealing surfaces 17 laterally and below the pressure part provide for a sufficient sealing opposite

the brush head 3. The grasp 1 is so far pushed in that the plug engages 6 into the outlet 5. Pushing in is made possible by the flexible material properties of the brush head 3. A moreover pushing of the grasp 1 in with print-hurry 12 leads to the fact that the plug 6 out of the outlet 5 is again pulled and exercised with the front surface 15 a pressure on the tooth paste in the tooth paste container.

The tooth pasta into the depressing groove 10 and thus a transport by the outlet 5 into the bristles is pressed is made possible 4. With the groove delimitation 11 and the arc-shaped trained check barrier 7 it is reached that the tooth paste out-steps only over the outlet 5. Fig. 2 a one-way toothbrush shows in schematic sectional view with to recognize is that the plug engaged 6 into the outlet 5 and tooth paste 8 in the tooth paste container 2 is. Fig. it shows 3 that to the grasp the 1 fastened print-hurries up to the notice into the tooth paste container 2 was in-led and the tooth paste 8 by the depressing groove 10 was transported and the outlet 5 into the range of the bristles 4. Both the sealing surfaces 17 and the groove delimitation 11 and a check barrier 7 of the pressure part of 12 prevent a withdrawing of the tooth paste 8 into unwanted ranges. Fig. a, b, C and D, show the centric arrangement of the outlet 5 in schematic plan view and sectional view in connection with the arrangement of the plug 6. Fig. a and b shows schlitzfoermige training of the outlet 5 with the accordingly trained plug 6, which is located on the profile surface 16 of the pressure part of 12. Fig. a and b show the arrangement of second outlets 5 in the brush head 3 with the pertinent plugs 6 in print-hurry 12.

Fig. a further arrangement of the arrangement of the outlet 5 and the plug 6 shows 7. Here a clearly extended module way A is intended. One reaches hereby the withdrawal of a larger quantity of tooth paste 8. In Fig. further training of the invention is represented a, b, C and D in different schematic representations, which is characterized by the fact that do not print-hurry 12 no more connected with the grasp 1, but when separate part is into the brush head 3 importable and platzierbar. Over a connecting piece 13, which to print-hurry 12 is fastened, print-hurries 12 into the tooth paste container 2 leaves themselves to push in. In Fig. 9 the lateral introduction of the pressure part of 12 intended over the pushing in opening 14 into the brush head 3 is. Fig. 10a and b show the separate in Laengs-und cross sections print-hurry 12 with the profile surface 16. The profile surface 16 covers here the reciprocal groove delimitation 11, the check barrier 7 and in the proximity of the front surface 15 plugs present 6. Reference symbol list 1 grasp of 2 tooth paste containers 3 brush head 4 bristles 5 outlet 6 plugs 7 check barrier 8 tooth paste 9 shank 10 depressing groove 11 groove delimitation 12 print-hurry 13 connecting pieces 14 pushing in opening 15 front surface 16 profile surface 17 sealing surface.

Patent claims

1. One-way toothbrush, consisting of a grasp (1) and bristles (4), characterized through - a Buers connected with the mentioned grasp (1) tenkopf (3), - a tooth paste container (2), inserted in the mentioned brush head (3), - an outlet (5) on the tooth paste container (2), - a check barrier (7) on the brush head (3), when expressing by putting the grasp (1) forward from more haelter (2) prevented a running out of the tooth paste (8), - an air impermeability device (6) in the outlet, which prevents a draining of the tooth pasta in the deactivated condition of the brush.
2. One-way toothbrush according to requirement 1, whereby the Luftun permeability device (6) the tooth paste withdrawal opening (5) opposes.
3. One-way toothbrush according to requirement 1, whereby riere (7) are curved the blockable.
4. One-way toothbrush after one of the requirements 1 to 3, where with both the air impermeability device (6) and those are accommodated the check barrier (7) on same line on the grasp.
5. One-way toothbrush with brush head (3) and grasp (1), where with in the brush head (3) a tooth paste reservoir is integrated, by which by pressure effect tooth paste by out footstep openings into the range of the bristles transporting it is cash thereby characterized that in the brush head (3) toward one of findlichen tooth paste container (2) in an a ski gust FF nung (14) adjustably arranged print-hurry there (12) finds, one in the tooth paste container (2) directly anlie gente front surface (15), a profile surface (16) and wei tere sealing surfaces (17) exhibits, whereby the profile surface (16) is arranged in the range underneath the outlets (5) of the brush head (3).
6. One-way toothbrush according to requirement 5, by the fact characterized that print-hurry (12) with the grasp (1) is connected.
7. One-way toothbrush according to requirement 5, by the fact characterized that print-hurry (12) independently of the grasp (1) in the brushing head (3) is arranged.
8. One-way toothbrush after one of the requirements 5 to 7, by the fact characterized that the profile surface (16) of the pressure part of (12) exhibits a by footstep groove (10), which borders from lateral bordering (11) and a rear check barrier (7) is and that in the depressing groove (10) one or more plugs

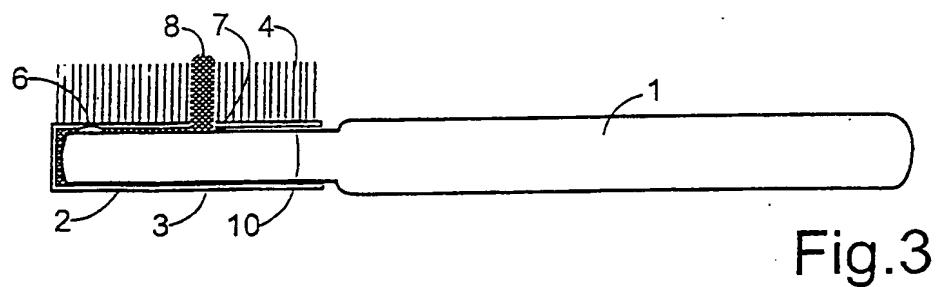
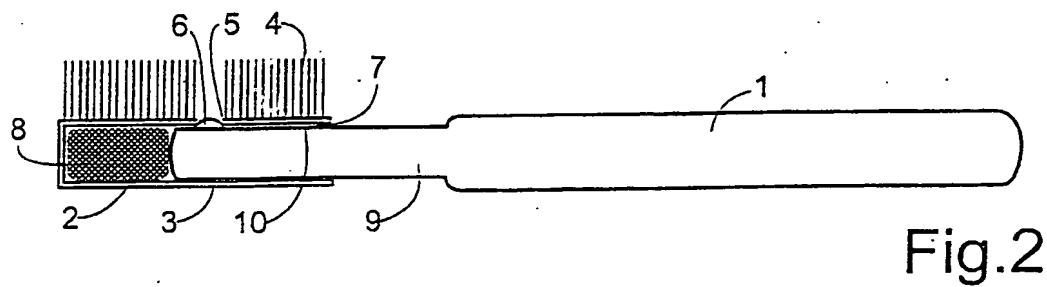
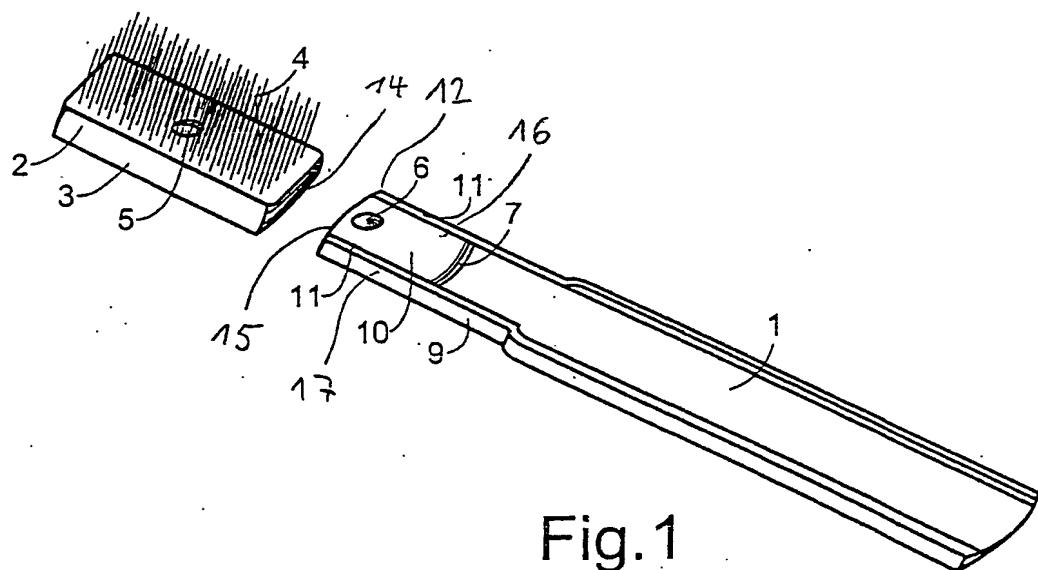
are so arranged a (6) that they close the outlets (5) of the side of the tooth pastabehaelters (2) in the brush head (3) hermetically en.

9. One-way toothbrush after one of the requirements 5 to 8, by the fact characterized that the outlets are positively lockable (5) with the plug (6).

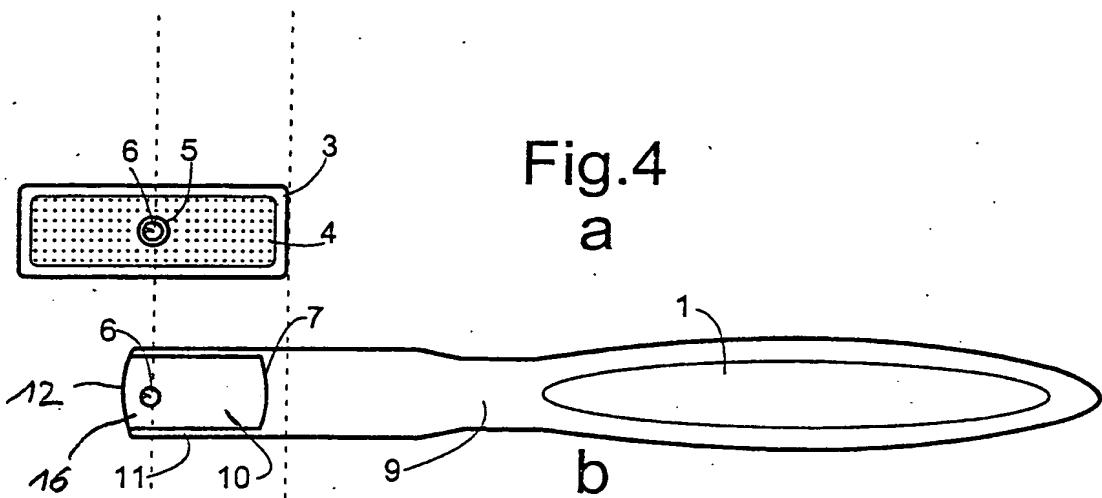
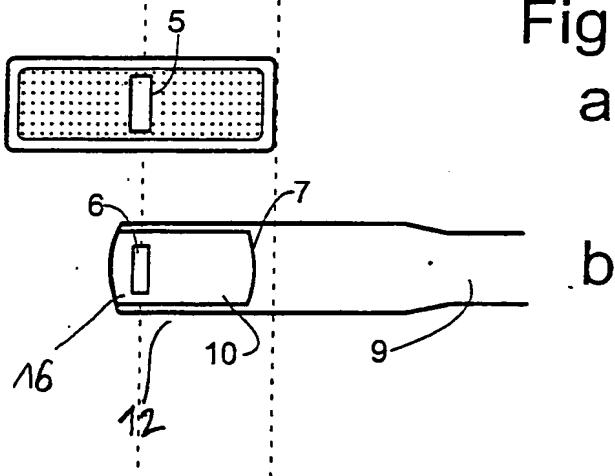
10. One-way toothbrush after one of the requirements 1 to 9, by the fact characterized that parts of the brush head (3) from flexible materialien at least exist.

11 One-way toothbrush after one of the requirements 1 to 10, by the fact characterized that the outlets (5) are schlitzfoermig trained.

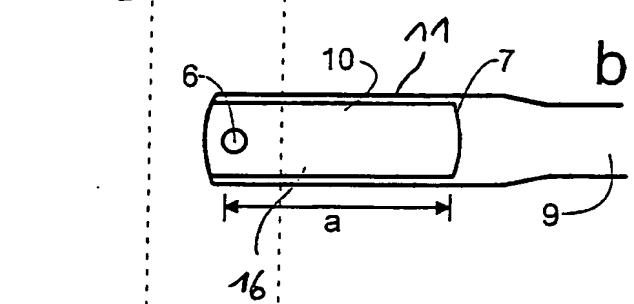
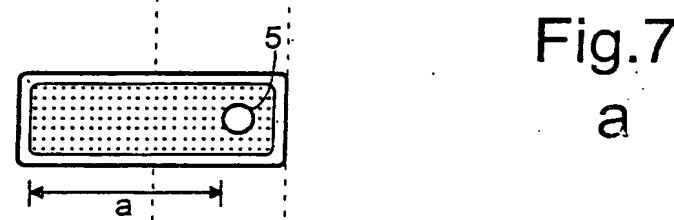
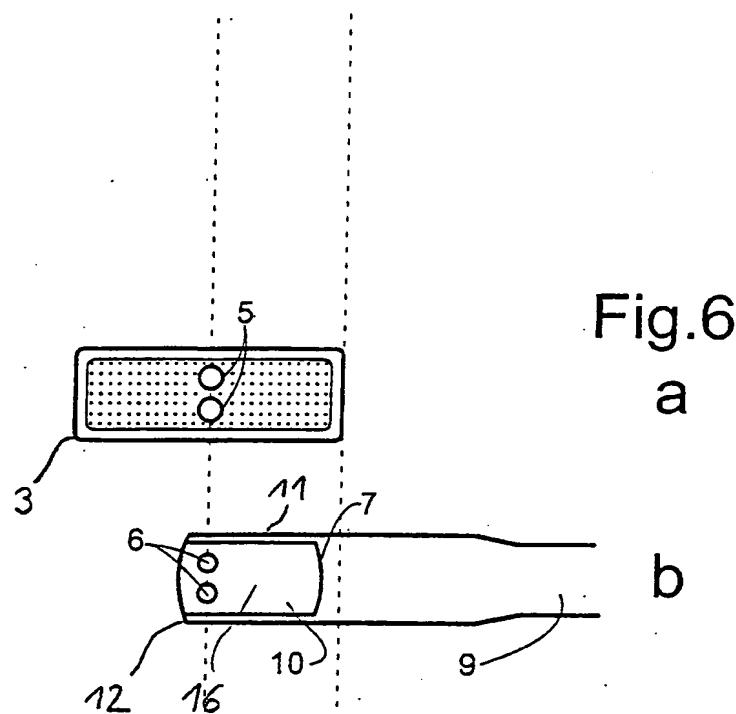
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Fig.4
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dFig.5
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Fig.8

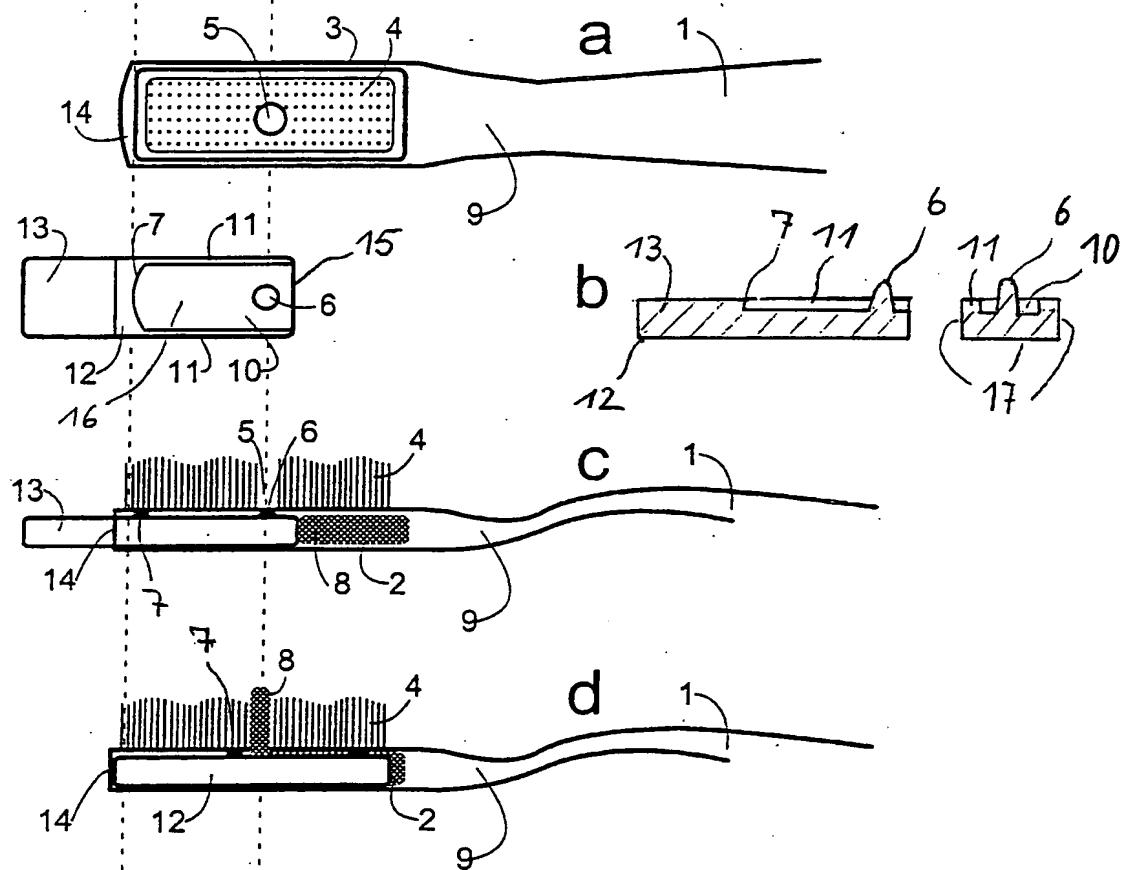
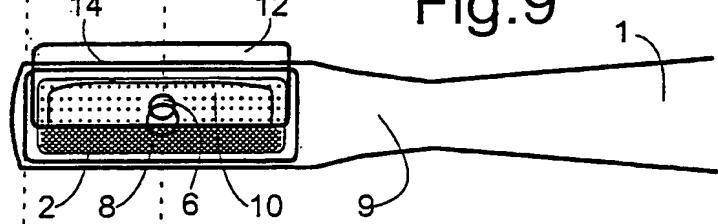


Fig.9



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